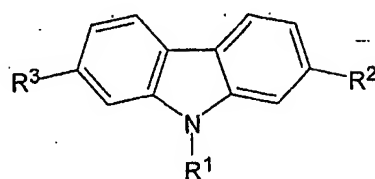


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**WHAT IS CLAIMED IS:**

1. A compound of Formula I:

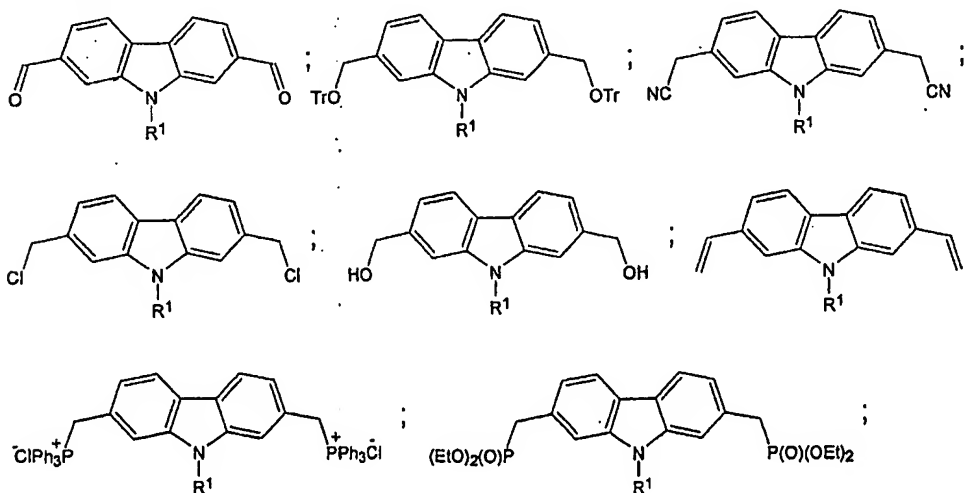
**Formula I**

5 wherein:

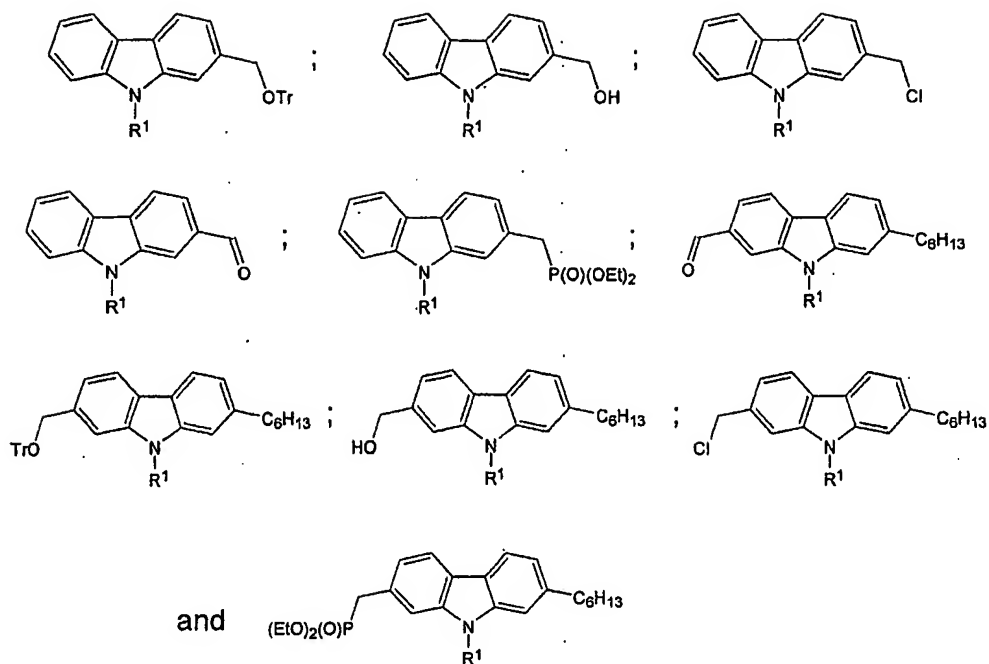
$R^1$  is selected from the group consisting of H, alkyl, and aryl;

$R^2$  and  $R^3$  are independently selected from the group consisting of H, alkyl, formyl, hydroxymethyl, trityloxymethyl, acetonitrile, chloromethyl, methylphosphonate, methyltriphenylphosphonium and vinyl.

- 10 2. A compound as defined in claim 1, selected from the group consisting of:

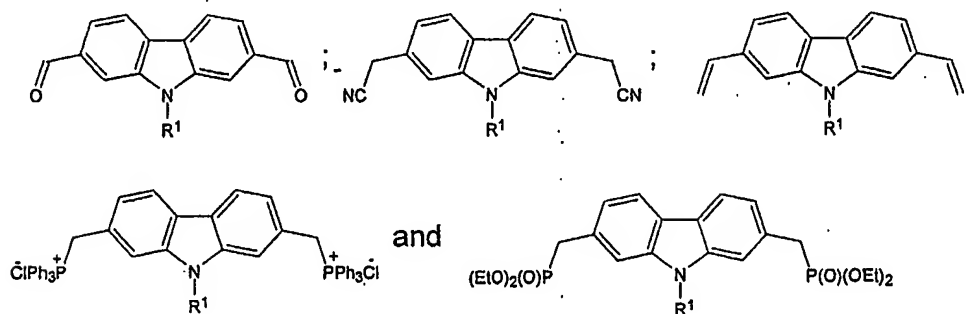


41



wherein  $\text{R}^1$  is as previously defined.

3. A compound as defined in claim 1, selected from the group consisting of:

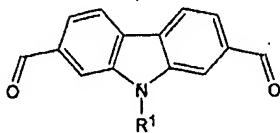


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wherein  $\text{R}^1$  is as previously defined.

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4. A compound as defined in claims 2 and 3 having the formula:



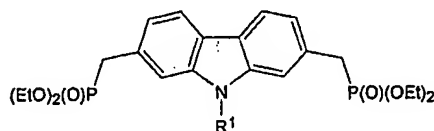
wherein R¹ is alkyl.

5. A compound as defined in claim 4, wherein R¹ is hexyl or 2-ethylhexyl.

6. A compound as defined in claim 4, wherein R¹ is aryl.

7. A compound as defined in claim 4, wherein R¹ is 4-octyloxyphenyl.

8. A compound as defined in claims 2 and 3 having the formula:

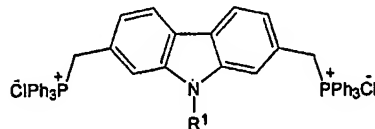


10

wherein R¹ is alkyl.

9. A compound as defined in claim 8, wherein R¹ is hexyl or 2-ethylhexyl.

10. A compound as defined in claims 2 and 3 having the formula:



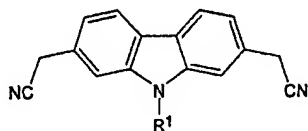
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wherein R¹ is alkyl.

11. A compound as defined in claim 10, wherein R¹ is 2-ethylhexyl.

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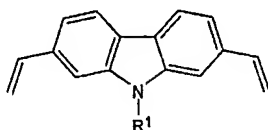
12. A compound as defined in claims 2 and 3 having the formula:



wherein R<sup>1</sup> is alkyl.

13. A compound as defined in claim 12, wherein R<sup>1</sup> is 2-ethylhexyl.

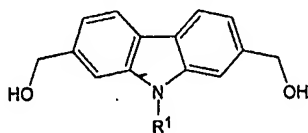
14. A compound as defined in claims 2 and 3 having the formula:



wherein R<sup>1</sup> is alkyl.

15. A compound as defined in claim 14, wherein R<sup>1</sup> is 2-ethylhexyl.

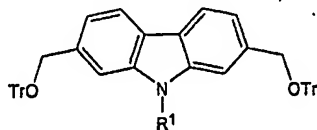
16. A compound as defined in claim 2 having the formula:



wherein R<sup>1</sup> is alkyl.

17. A compound as defined in claim 16, wherein R<sup>1</sup> is hexyl or 2-ethylhexyl.

18. A compound as defined in claim 2 having the formula:



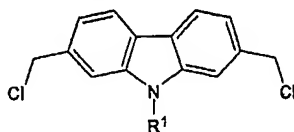
wherein  $R^1$  is H or alkyl.

19. A compound as defined in claim 18, wherein  $R^1$  is hexyl or 2-ethylhexyl.

20. A compound as defined in claim 18, wherein  $R^1$  is aryl.

5 21. A compound as defined in claim 20, wherein  $R^1$  is 4-octyloxyphenyl.

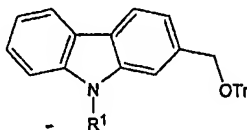
22. A compound as defined in claim 2 having the formula:



wherein  $R^1$  is alkyl.

10 23. A compound as defined in claim 22, wherein  $R^1$  is hexyl.

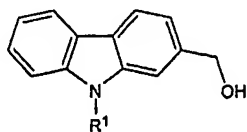
24. A compound as defined in claim 2 having the formula:



wherein  $R^1$  is H or alkyl.

25. A compound as defined in claim 24, wherein  $R^1$  is hexyl.

15 26. A compound as defined in claim 2 having the formula:

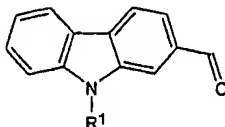


wherein  $R^1$  is alkyl.

27. A compound as defined in claim 26, wherein  $R^1$  is hexyl.

45

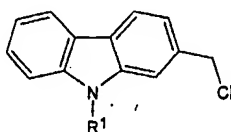
28. A compound as defined in claim 2 having the formula:



wherein R<sup>1</sup> is alkyl.

29. A compound as defined in claim 28, wherein R<sup>1</sup> is hexyl.

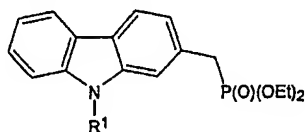
- 5 30. A compound as defined in claim 2 having the formula:



wherein R<sup>1</sup> is alkyl.

31. A compound as defined in claim 30, wherein R<sup>1</sup> is hexyl.

32. A compound as defined in claim 2 having the formula:

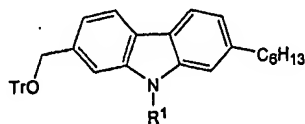


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wherein R<sup>1</sup> is alkyl.

33. A compound as defined in claim 32, wherein R<sup>1</sup> is hexyl.

34. A compound as defined in claim 2 having the formula:

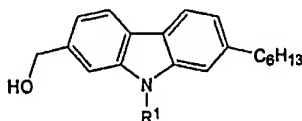


15 wherein R<sup>1</sup> is H or alkyl.

35. A compound as defined in claim 34, wherein R<sup>1</sup> is methyl.

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36. A compound as defined in claim 2 having the formula:

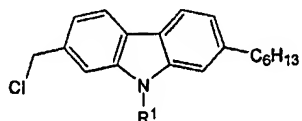


wherein R<sup>1</sup> is alkyl.

37. A compound as defined in claim 36, wherein R<sup>1</sup> is methyl.

5

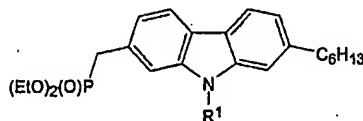
38. A compound as defined in claim 2 having the formula:



wherein R<sup>1</sup> is alkyl.

39. A compound as defined in claim 38, wherein R<sup>1</sup> is methyl.

40. A compound as defined in claim 2 having the formula:

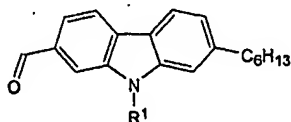


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wherein R<sup>1</sup> is alkyl.

41. A compound as defined in claim 40, wherein R<sup>1</sup> is methyl.

42. A compound as defined in claim 2 having the formula:



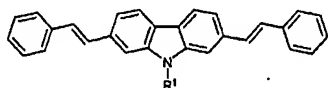
15 wherein R<sup>1</sup> is alkyl.

43. A compound as defined in claim 42, wherein R<sup>1</sup> is methyl.

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44. An oligomer comprising the reaction product of a first compound of Formula I and at least a second compound, said second compound being either a compound of Formula I; benzaldehyde; 5,5'-diformyl-2,2'-bithiophene, 4-bromo-1,1'-biphenyl; benzyl cyanide; or 1,4-bis(methylphosphonate)benzene.

45. An oligomer as defined in claim 44 having the formula:

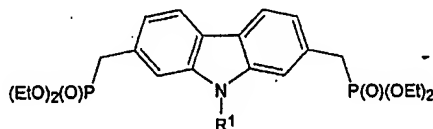


wherein R<sup>1</sup> is selected from the group consisting of H, alkyl, and aryl.

46. An oligomer as defined in claim 45, wherein R<sup>1</sup> is alkyl.
47. An oligomer as defined in claim 46, wherein R<sup>1</sup> is hexyl or 2-ethylhexyl.

48. An oligomer as defined in claim 47, wherein R<sup>1</sup> is hexyl.

49. An oligomer as defined in claim 45 wherein the first compound of Formula I is of the formula:



wherein R<sup>1</sup> is selected from the group consisting of H, alkyl, and aryl.

50. An oligomer as defined in claim 49, wherein R<sup>1</sup> is alkyl.

51. An oligomer as defined in claim 50, wherein R<sup>1</sup> is hexyl or 2-ethylhexyl.

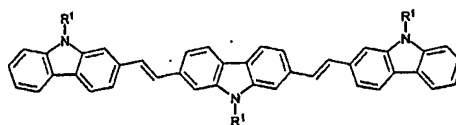
52. An oligomer as defined in claim 51, wherein R<sup>1</sup> is hexyl.



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53. An oligomer as defined in any one of claims 45 to 52, wherein the second compound is benzaldehyde.

54. An oligomer as defined in claim 44 having the formula:



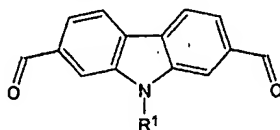
5 wherein  $R^1$  is selected from the group consisting of H, alkyl, and aryl.

55. An oligomer as defined in claim 54, wherein  $R^1$  is alkyl.

56. An oligomer as defined in claim 55, wherein  $R^1$  is hexyl or 2-ethylhexyl.

57. An oligomer as defined in claim 56, wherein  $R^1$  is hexyl.

10 58. An oligomer as defined in claim 54 wherein the first compound of Formula I is of the formula:



wherein  $R^1$  is selected from the group consisting of H, alkyl, and aryl.

59. An oligomer as defined in claim 58, wherein  $R^1$  is alkyl.

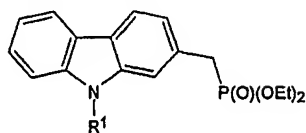
15 60. An oligomer as defined in claim 59, wherein  $R^1$  is hexyl or 2-ethylhexyl.

61. An oligomer as defined in claim 59, wherein  $R^1$  is hexyl.

62. An oligomer as defined in claim 58, wherein  $R^1$  is aryl.

20 63. An oligomer as defined in claim 62, wherein  $R^1$  is 4-octyloxyphenyl.

64. An oligomer as defined in claim 54 wherein the second compound of Formula I is of the formula:

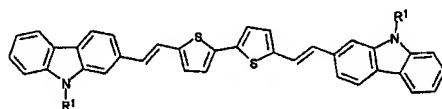


wherein R¹ is selected from the group consisting of H, alkyl, and aryl.

5 65. An oligomer as defined in claim 64, wherein R¹ is alkyl.

66. An oligomer as defined in claim 65, wherein R¹ is hexyl.

67. An oligomer as defined in claim 44 having the formula:

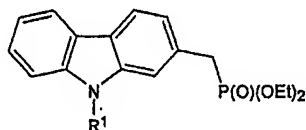


wherein R¹ is selected from the group consisting of H, alkyl, and aryl.

10 68. An oligomer as defined in claim 67, wherein R¹ is alkyl.

69. An oligomer as defined in claim 68, wherein R¹ is hexyl.

70. An oligomer as defined in claim 67 wherein the first compound of Formula I is of the formula:



15 wherein R¹ is selected from the group consisting of H, alkyl, and aryl.

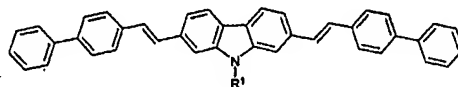
71. An oligomer as defined in claim 70, wherein R¹ is alkyl.

72. An oligomer as defined in claim 71, wherein R¹ is hexyl.

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73. An oligomer as defined in any one of claims 67 to 72, wherein the second compound is 5,5'-diformyl-2-2'bithiophene.

74. An oligomer as defined in claim 44 having the formula:

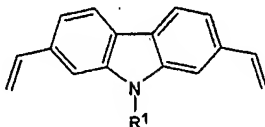


5 wherein R¹ is selected from the group consisting of H, alkyl, and aryl.

75. An oligomer as defined in claim 74, wherein R¹ is alkyl.

76. An oligomer as defined in claim 75, wherein R¹ is 2-ethylhexyl.

10 77. An oligomer as defined in claim 74 wherein the first compound of Formula I is of the formula:



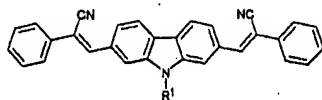
wherein R¹ is selected from the group consisting of H, alkyl, and aryl.

78. An oligomer as defined in claim 77, wherein R¹ is alkyl.

15 79. An oligomer as defined in claim 78, wherein R¹ is 2-ethylhexyl.

80. An oligomer as defined in any one of claims 74 to 79, wherein the second compound is 4-bromo-1,1'biphenyl.

81. An oligomer as defined in claim 44 having the formula:



wherein R<sup>1</sup> is selected from the group consisting of H, alkyl, and aryl.

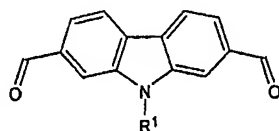
82. An oligomer as defined in claim 81, wherein R<sup>1</sup> is alkyl.

5 83. An oligomer as defined in claim 82, wherein R<sup>1</sup> is hexyl or 2-ethylhexyl.

84. An oligomer as defined in claim 81, wherein R<sup>1</sup> is aryl.

85. An oligomer as defined in claim 84, wherein R<sup>1</sup> is 4-octyloxyphenyl.

10 86. An oligomer as defined in claim 81 wherein the first compound of Formula I is of the formula:



wherein R<sup>1</sup> is selected from the group consisting of H, alkyl, and aryl.

87. An oligomer as defined in claim 86, wherein R<sup>1</sup> is alkyl.

15 88. An oligomer as defined in claim 87, wherein R<sup>1</sup> is hexyl or 2-ethylhexyl.

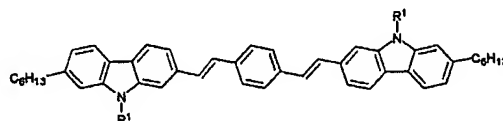
89. An oligomer as defined in claim 88, wherein R<sup>1</sup> is hexyl.

90. An oligomer as defined in claim 86, wherein R<sup>1</sup> is aryl.

91. An oligomer as defined in claim 90, wherein R<sup>1</sup> is 4-octyloxyphenyl.

92. An oligomer as defined in any one of claims 81 to 91, wherein the second compound is benzyl cyanide.

5 93. An oligomer as defined in claim 44 having the formula:

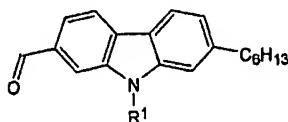


wherein R<sup>1</sup> is selected from the group consisting of H, alkyl, and aryl.

94. An oligomer as defined in claim 93, wherein R<sup>1</sup> is alkyl.

95. An oligomer as defined in claim 94, wherein R<sup>1</sup> is methyl.

10 96. An oligomer as defined in claim 93, wherein the first compound of Formula I is of the formula:



wherein R<sup>1</sup> is selected from the group consisting of H, alkyl, and aryl.

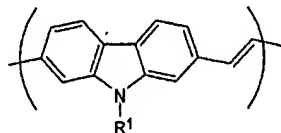
97. An oligomer as defined in claim 96, wherein R<sup>1</sup> is alkyl.

15 98. An oligomer as defined in claim 97, wherein R<sup>1</sup> is methyl.

99. An oligomer as defined in any one of claims 93 to 98, wherein the second compound is 1,4-(bis)methylphosphonate)benzene.

100. A polymer comprising the reaction product of a compound of Formula I and optionally at least one compound selected from the group consisting of 2,5-dioctyloxy-1,4-diformylbenzene; 2,5-bis(diphenylamino)terephthalaldehyde; {4-(2-ethylhexyloxy)-phenyl]-bis-(4'-formylphenyl); 6,6'-dibromo-2,2'-bis(2"-ethylhexyloxy)-1,1'-binaphthyl; and 3-hexyl-2,5-bis(methylphosphonate)thiophene.

101. A polymer as defined in claim 100, comprising monomeric groups of the formula:



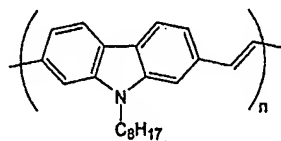
102. wherein R¹ is selected from the group consisting of H, alkyl, and aryl.

103. A polymer as defined in claim 101, wherein R¹ is alkyl.

104. A polymer as defined in claim 102, wherein R¹ is hexyl or 2-ethylhexyl.

105. A polymer as defined in claim 103, wherein R¹ is 2-ethylhexyl.

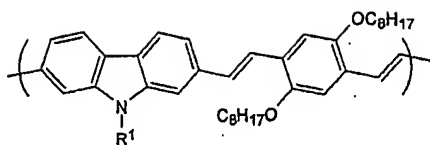
106. A polymer as defined in claim 104 having the formula:



wherein "n" is an integer ranging from 5 to 100.

107. A polymer as defined in claim 100, comprising monomeric groups of the formula:

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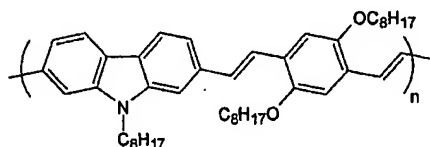
wherein  $R^1$  is selected from the group consisting of H, alkyl, and aryl.

107. A polymer as defined in claim 106, wherein  $R^1$  is alkyl.

108. A polymer as defined in claim 107, wherein  $R^1$  is hexyl or 2-ethylhexyl.

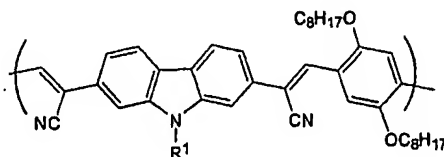
109. A polymer as defined in claim 108, wherein  $R^1$  is 2-ethylhexyl.

110. A polymer as defined in claim 109 having the formula:



wherein "n" is an integer ranging from 5 to 100.

111. A polymer as defined in claim 100, comprising monomeric groups of the formula:



wherein  $R^1$  is selected from the group consisting of H, alkyl, and aryl.

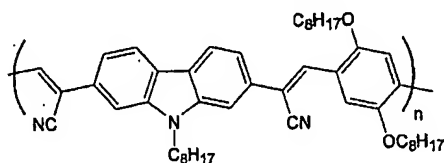
112. A polymer as defined in claim 111, wherein  $R^1$  is alkyl.

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113. A polymer as defined in claim 112, wherein R<sup>1</sup> is hexyl or 2-ethylhexyl.

114. A polymer as defined in claim 113, wherein R<sup>1</sup> is 2-ethylhexyl.

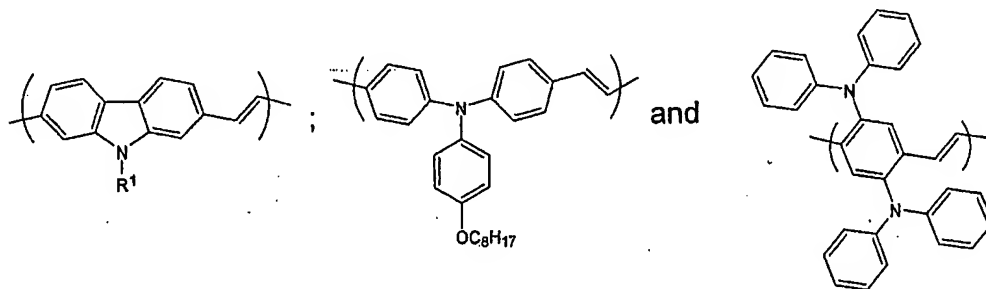
115. A polymer as defined in claim 114 having the formula:



5

wherein "n" is an integer ranging from 5 to 100.

116. A polymer as defined in claim 100, comprising monomeric groups of the formula:



10 wherein R<sup>1</sup> is selected from the group consisting of H, alkyl, and aryl.

117. A polymer as defined in claim 116, wherein R<sup>1</sup> is alkyl.

118. A polymer as defined in claim 117, wherein R<sup>1</sup> is hexyl or 2-ethylhexyl.

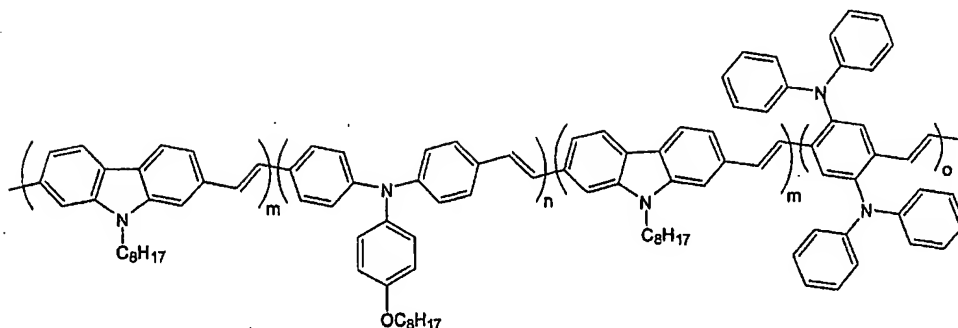
119. A polymer as defined in claim 118, wherein R<sup>1</sup> is 2-ethylhexyl.

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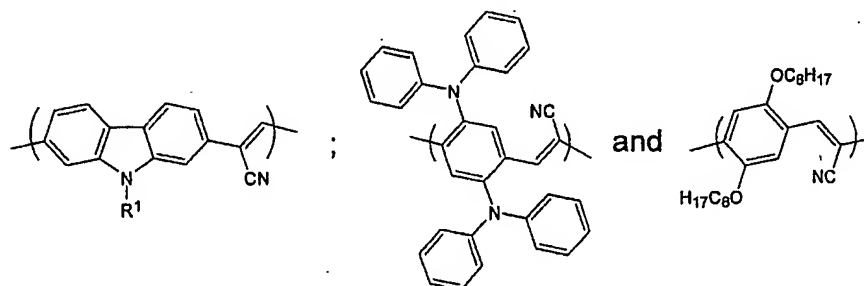
56

120. A polymer as defined in claim 119 having the formula:



wherein "n", "m", and "o" are integers ranging from 5 to 100.

121. A polymer as defined in claim 100, comprising monomeric  
5 groups of the formula:



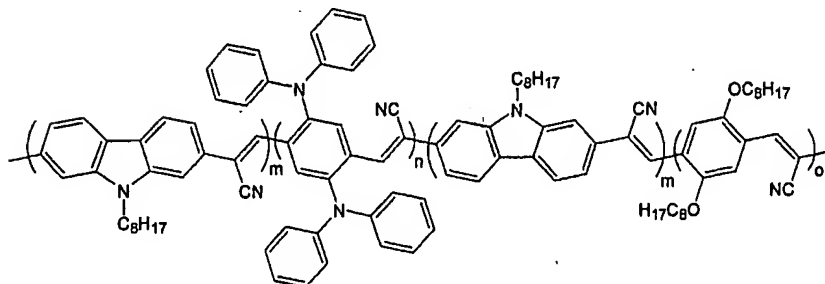
wherein R<sup>1</sup> is selected from the group consisting of H, alkyl, and aryl.

122. A polymer as defined in claim 121, wherein R<sup>1</sup> is alkyl.

123. A polymer as defined in claim 122, wherein R<sup>1</sup> is hexyl or 2-  
10 ethylhexyl.

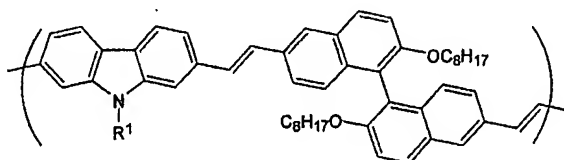
124. A polymer as defined in claim 123, wherein R<sup>1</sup> is 2-ethylhexyl.

125. A polymer as defined in claim 124 having the formula:



wherein "n", "m", and "o" are integers ranging from 5 to 100.

126. A polymer as defined in claim 100, comprising monomeric groups of the formula:



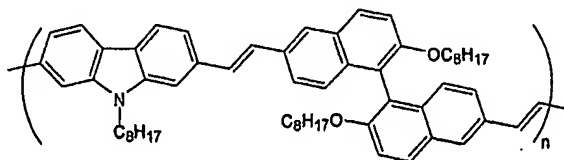
wherein R<sup>1</sup> is selected from the group consisting of H, alkyl, and aryl.

127. A polymer as defined in claim 126, wherein R<sup>1</sup> is alkyl.

128. A polymer as defined in claim 127, wherein R<sup>1</sup> is hexyl or 2-ethylhexyl.

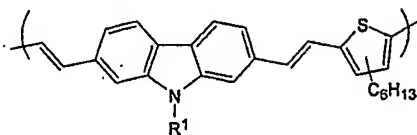
129. A polymer as defined in claim 128, wherein R<sup>1</sup> is 2-ethylhexyl.

130. A polymer as defined in claim 129 having the formula:



wherein "n" is an integer ranging from 5 to 100.

131. A polymer as defined in claim 100, comprising monomeric groups of the formula:

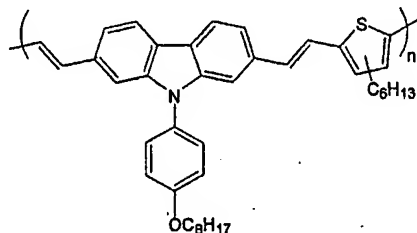


wherein R¹ is selected from the group consisting of H, alkyl, and aryl.

5 132. A polymer as defined in claim 131, wherein R¹ is aryl.

133. A polymer as defined in claim 132, wherein R¹ is 4-octyloxyphenyl.

134. A polymer as defined in claim 133 having the formula:



10 wherein "n" is an integer ranging from 5 to 100.

135. A composition comprising the oligomer and/or polymer of claims 44-134.

136. An electronic device comprising a film or coating comprising the oligomer and/or polymer of claims 44-134.

15 137. The electronic device of claim 136, configured as a light-emitting diode.

138. The electronic device of claim 136, configured as a field-effect transistor.

139. The electronic device of claim 136, configured as a solar cell.